

Application No. 10/692,545
Amendment dated September 10, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A distractor, comprising: a distraction head having a longitudinal axis and a first pair of opposed surfaces extending substantially along said longitudinal axis and defining a first working distraction height approximating a normal disc space height and a second pair of opposed surfaces extending substantially along said longitudinal axis and defining a second working distraction height approximating a second normal disc space height, said distraction head rotatable between said first distraction height and said second distraction height by rotating the distraction head about said longitudinal axis.
2. (previously presented) The distractor of claim 1, wherein said first pair of opposing surfaces are planar surfaces extending in a parallel alignment along said longitudinal axis.
3. (previously presented) The distractor of claim 2, wherein said distractor head includes:
 - a distractor tip having a rounded leading edge to permit insertion of said distractor head to directly achieve said second working distraction height; and
 - a pair of inclined surfaces extending from said leading edge to said first pair of opposing surfaces.
4. (previously presented) The distractor of claim 1, wherein said distractor head includes rounded surfaces adapted to engage and urge bone apart to said second distraction height during rotation.
5. (previously presented) The distractor of claim 1, further comprising a shaft joined with said distractor head.
6. (previously presented) The distractor of claim 5, wherein said shaft is integrally joined to said distractor head.

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7. (previously presented) A spinal distractor for use in spinal surgery for temporarily positioning two adjacent vertebral bodies in selected relationship to restore the height of the disc space therebetween prior to inserting an implant into the distracted disc space, said spinal distractor comprising:
 - a body having a proximal end, a distal end opposite said proximal end, and a mid-longitudinal axis therebetween; and
 - an extension extending from said distal end of said body and configured to contact the adjacent vertebral bodies upon insertion into the disc space between the two adjacent vertebral bodies, said extension being removably attached to said body, said extension being adapted to bear against adjacent endplates of the two adjacent vertebral bodies, said extension having a first portion for bearing against one of the adjacent endplates and a second portion for bearing against the other of the adjacent endplates to maintain the adjacent vertebral bodies in selected relationship, said extension having a height no greater than the surgically corrected height of the disc space, said distal end of said body being configured to prevent said body from entering the disc space between the endplates of the adjacent vertebral bodies when said extension is inserted into the disc space.
8. (previously presented) The spinal distractor of claim 7, wherein said body has a shoulder at the juncture of said extension and said body for preventing said body from entering the disc space between the endplates of the adjacent vertebral bodies.
9. (previously presented) The spinal distractor of claim 7, wherein said distal end of said body has a circular cross-section.
10. (previously presented) The spinal distractor of claim 7, wherein said extension includes a head proximate the juncture of said extension and said body, said head being dimensioned to prevent entry into the disc space.
11. (previously presented) The spinal distractor of claims 10, wherein said head has a low profile so as to minimize protrusion of said head from the two adjacent vertebral bodies.

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12. (previously presented) The spinal distractor of claim 7, wherein said extension has a tapered front end to facilitate insertion of said extension into the disc space.
13. (previously presented) The spinal distractor of claim 7, wherein said extension has surface irregularities.
14. (previously presented) The spinal distractor of claim 13, wherein said surface irregularities include ratchetings.
15. (previously presented) The spinal distractor of claim 13, wherein said surface irregularities include knurling.
16. (previously presented) The spinal distractor of claim 7, wherein said body is configured to engage an extraction device for extracting said extension from the disc space.
17. (previously presented) The spinal distractor of claim 16, wherein said body includes a mating member for mating with the extraction device.
18. (previously presented) The spinal distractor of claim 7, further comprising an impacting surface proximate the juncture of said body and said extension for flattening portions of the exterior surface of the two adjacent vertebral bodies.
19. (previously presented) The spinal distractor of claim 7, in combination with a guard member having an opening for providing protected access to the disc space and the adjacent vertebral bodies, said spinal distractor adapted to pass through said opening of said guard.
20. (previously presented) The combination of claim 19, wherein said proximal end of said body of said distractor is configured to allow said guard to be placed over said proximal end of said body.
21. (previously presented) The combination of claim 19, in combination with a bone removal device having a portion sized for movement through said opening for forming through said guard an implantation space at least in part across the surgically corrected height of the disc space.
22. (previously presented) The combination of claim 21, wherein said bone removal device is one of a drill, a trephine, and a reamer.

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23. (previously presented) The combination of claim 7, further in combination with a spinal insert.
24. (previously presented) The combination of claim 23, wherein said spinal insert is one of a dowel, an interbody spinal implant, and an interbody spinal fusion implant.
25. (previously presented) The combination of claim 23, wherein said spinal insert comprises at least in part bone.
26. (previously presented) The combination of claim 23, wherein said spinal insert is a bone graft.
27. (previously presented) The combination of claim 23, further in combination with a fusion promoting substance.
28. (previously presented) The combination of claim 27, wherein said fusion promoting substance is bone.
29. (previously presented) The combination of claim 23, further in combination with a press for compressing said fusion promoting substance into said spinal insert.
30. (previously presented) The combination of claim 23, further in combination with an implant driver configured to insert said spinal insert into the implantation space formed by said bone removal device.
31. (previously presented) The combination of claim 19, in combination with a tap for insertion through said guard for tapping the two adjacent vertebral bodies.
32. (previously presented) A distraction device for distracting the disc space between adjacent vertebrae, comprising:

an elongated stem having a height corresponding to a desired height of distraction for the disc space, said stem having a first end and a second end defining a longitudinal axis therebetween and a length along said axis that is sized to be maintained within the disc space when said elongated stem is driven into the disc space; and

a flange at said first end projecting outward from said longitudinal axis of said stem, said flange having a bone contacting face for contacting at least one of the vertebrae when said stem is driven into the disc space and for transmitting

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- a reduction force to the vertebra upon application of an external force to the distraction device.
33. (previously presented) A distraction member for distracting a disc space between adjacent vertebral bodies, comprising:
- a distraction tip adapted for insertion between the adjacent vertebral bodies to distract the disc space; and
 - at least one fin secured to said distraction tip, at least a portion of the at least one fin extending transversely from said distraction tip and adapted to engage a corresponding one of the adjacent vertebral bodies.
34. (previously presented) A distraction member for distracting a disc space between adjacent vertebral bodies, comprising:
- a distraction tip adapted for insertion between the adjacent vertebral bodies to distract the disc space, said distraction tip having a tapered distal portion; and
 - at least one fin, at least a portion of the fin extending transversely from said distraction tip and adapted to engage a corresponding one of the adjacent vertebral bodies.
35. (previously presented) A distraction member for distracting a disc space between adjacent vertebral bodies, comprising:
- a distraction tip adapted for insertion between the adjacent vertebral bodies to distract the disc space;
 - a hub extending axially from said distraction tip, a portion of said hub extending transversely beyond said distraction tip to form a shoulder; and
 - at least one fin, at least a portion of the fin extending transversely from said distraction tip and adapted to engage a corresponding one of the adjacent vertebral bodies.
36. (previously presented) A method for establishing a disc space height between two adjacent vertebral bodies, comprising:
- providing a distraction member having a distraction tip and at least one longitudinally extending fin secured to said tip;

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- positioning the tip against the adjacent vertebral bodies; and
advancing the distraction tip between the adjacent vertebral bodies to restore the disc space height, the fin in intimate engagement with at least one of the adjacent vertebral bodies.
37. (previously presented) The method of claim 36, further including providing a second distraction member having a fin;
positioning the second distraction member with a fin adjacent the disc space laterally spaced from and in substantial alignment with the first distraction member; and
advancing the first and second distraction members into the disc space.
38. (previously presented) A method for distracting a disc space between two adjacent vertebral bodies, comprising:
providing a distraction member having a distraction tip sized for insertion within the disc space and at least one longitudinally extending fin secured to the distraction tip;
inserting the distraction tip between the adjacent vertebral bodies; and
engaging the fin with a corresponding one of the adjacent vertebral bodies.
39. (previously presented) The method of claim 38, wherein the engaging comprises cutting into the at least one of the adjacent vertebral bodies.
40. (previously presented) The method of claim 39, wherein the engaging maintains an orientation of the distraction tip during the inserting.
41. (new) A method of restoring disc height between adjacent vertebrae of a patient, the method comprising:
inserting a cannula through the skin and tissue of the patient to create a working channel to the disc space;
distracting the disc space to a disc space height with a distractor extending through the working channel into the disc space;
inserting an instrument through the working channel;

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positioning a distal portion of the instrument adjacent a distal portion of the distractor in the disc space; and

performing a procedure in the disc space with the instrument.

42. (new) The method according to claim 41, wherein performing the procedure includes removing disc material from the disc space through the working channel.
43. (new) The method according to claim 41, wherein performing the procedure includes removing endplate material from the disc space through the working channel.
44. (new) The method according to claim 41, further comprising inserting at least one implant through the working channel into the disc space.
45. (new) The method according to claim 41, wherein distracting the disc space includes sequentially distracting the disc space to the desired disc space height.
46. (new) A method of preparing a disc space for insertion of an implant between adjacent vertebral endplates of a patient, the method comprising:
 - inserting a cannula through the skin and tissue of the patient to create a working channel to the disc space;
 - distracting the disc space to a disc space height by positioning a distractor in the disc space, the distractor being attached to a stem that extends through the working channel, the distractor including a body portion extending between a leading end and a trailing end, the body portion including an upper surface for contacting one of the adjacent vertebral endplate and an opposite lower surface for contacting the other of the adjacent vertebral endplates and opposite first and second sidewalls extending between the upper and lower surfaces; and
 - cutting the adjacent vertebral endplates to form an implant insertion location while maintaining distraction with the distractor.
47. (new) The method according to claim 46, wherein cutting the adjacent vertebral endplates includes removing endplate material from the disc space through the working channel.

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48. (new) The method according to claim 46, further comprising inserting at least one implant through the working channel into the disc space.
49. (new) The method according to claim 46, wherein distracting the disc space includes sequentially distracting the disc space to the desired disc space height.